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ecology and environment, inc.

SITE SAFETY PLAN

Version 9/88

A. GENERAL INFORMATION

Project Title: West 78th Circle site

Project No.: FT-1305 FMN0172SA

TDD/Fan No.: F05-8903-001

Project Manager: STANLEY A. SENGER

Project Dir.: NA

Location(s): 4470 W. 78th Street, Bloomington, MN 55435

Prepared by: Stanley A. Senger

Date Prepared: 4-18-89

Approval by: Ram Singh Sunge

Date Approved: 5-9-89

Site Safety Officer Review: (Deb Barrett) Deb Barrett

Date Reviewed: 5-9-89

Scope/Objective of Work: Site interview, recon. inspection, obtain 5 soil samples.

Proposed Date of Field Activities: May 16, 89'

Background Info: Complete [X] Preliminary (No analytical data available) [ ]

Documentation/Summary:

Overall Chemical Hazard:	Serious [ ] Low [X]	Moderate [ ] Unknown [ ]
Overall Physical Hazard:	Serious [ ] Low [X]	Moderate [ ] Unknown [ ]

B. SITE/WASTE CHARACTERISTICS

Waste Type(s):

Liquid [X]	Solid [ ]	Sludge [ ]	Gas/Vapor [ ]

Characteristic(s):

Flammable/ Ignitable [ ]	Volatile [X]	Corrosive [ ]	Acutely Toxic [ ]
Explosive [ ]	Reactive [ ]	Carcinogen [X]	Radioactive* [ ]

Other: Persistant

Physical Hazards:

Overhead [ ]	Confined* Space [ ]	Below Grade [ ]	Trip/Fall [ ]
Puncture [ ]	Burn [ ]	Cut [ ]	Splash [ ]
Noise [ ]	Heat/Cold Stress [X]	Other: Vehicle traffic may be high along 78th St.	

*Requires completion of additional form and special approval from the Corporate Health/Safety Group. Contact RSC or HQ.

FMN0172SA
F05-8903-001

Site History/Description and Unusual Features (see Sampling Plan for detailed description): SEE Attached "Executive Summary" by MPCA. Site is currently a Cattle Company Restaurant. Backhoe operations during facility construction revealed haz. waste. See next page.

Locations of Chemicals/Wastes: Buried at @ 4'-10' depth in southwest corner of site. Assume entire site to be contaminated.

Estimated Volume of Chemicals/Wastes: Approximately 25 five-gallon pails were revealed upon August 1984 excavation. Some empty cans were removed from the excavated trench, others were backfilled into the trench.

Site Currently in Operation Yes [X] No [ ]
Site is a Restaurant ... no haz. waste activity involved ... see next page for summary.

C. HAZARD EVALUATION

List Hazards by Task (i.e., drum sampling, drilling, etc.) and number them. (Task numbers are cross-referenced in Section D)

Physical Hazard Evaluation: (1.) Site reconnaissance inspection.
(2.) On-site soil sampling.
3.
4.
5.
6.
7.
8.

Chemical Hazard Evaluation:

Compound	PEL/TWA	Route of Exposure	Acute Symptoms	Odor Threshold	Odor Description
Arochlor 1254 (28.9 ppm)	.03 ppm	ing, eye, skn, inhl.	eye/nose/throat irr	—	—
Toluene (94 ppb)	100 ppm	ing, eye, skn, inh.	eye/resp/skn irr, confusion, dizzy	.17 ppm	aromatic, pungent,
M-Xylene (140 ppb)	100 ppm	all routes	dizzy, headache, cough	.05 ppm	aromatic
1,1,2-Trichloroethene (8.5 ppm)	50 ppm	ing, eye, skn, inh.	eye/nose/throat irr nausea, blurry vision	50 ppm	chloroform-like

Note: Complete and attach a Hazard Evaluation Sheet for major known contaminant.

Site Name West 78th Circle site

Job No. FT-1305

TDD/PAS F05-8903-001/FMN0172SA

SITE HISTORY (Continued)

Minnesota Pollution Control Agency

January 6, 1985

EXECUTIVE SUMMARY
78th Circle Site
MND980995872

Situation

The 78th Circle Site of Bloomington was purchased by the Saga Corporation for the construction of a restaurant. This site abuts Aztec Industries to the northeast, a former hazardous waste site under investigation by the Minnesota Pollution Control Agency (MPCA). During installation of utilities, approximately 25 five-gallon pails containing a dark viscous material were uncovered. Samples of the material were taken and low concentrations of toluene, m-xylene, trichloroethylene, and polychloronated biphenols were found in the material.

Most of the contaminated soil and leaking pails were backfilled into the trench. The remaining pile of contaminated soil, containing about five pails of material, was subsequently spread over the surface. The surface was then paved for a parking lot, and the pails were disposed of into a dumpster.

Inspection Priority Recommendation

A low priority for inspection and a low potential hazard is recommended for this site. The contaminated area of the property was paved, thereby reducing the potential of leaching of the materials. No private wells are suspected to be in the area.

D. SITE SAFETY WORK PLAN

Site Control: Attach map, or sketch of site showing hot zone, contamination reduction, zone, etc.

Perimeter identified? Yes [X] No [ ] Site secured? N/A Yes [ ] No [X]

Work Areas Designated? Yes [X] No [ ] Zone(s) of Contamination Identified? Yes [X] No [ ]

Personnel Protection: TLD badges required for all field personnel.

Anticipated Level of Protection (Cross-reference task numbers to Section C):

	TASK DESCRIPTION	A	B	C	D	Modified Level D Description
Task 1	Recon. Inspection			←	← X	At minimum: • steel toed Boots • LATEX Disposable booties. • LATEX Disposable gloves and/or leather work gloves.
* Task 2	On-site Soil Sampling			←	← X	

* personnel driving split spoon with sledge hammer shall wear hard hat and safety glasses combined with the Modified level D described at right. LEVEL "C" ATTIRE SHALL BE WORN BY THE INDIVIDUAL WHO TRANSFERS THE SOIL SAMPLE FROM THE SPLIT SPOON TO THE SAMPLE JARS (Level "C" shall include: saranex suit, vitoa gloves, disp. latex booties, Ultra twin respirator w/ GMC-H cartridges). Soil sample depth shall not exceed 10 feet.

Modifications: Rad-Mini >0.1 mR/hr (alarm sounds) and/or Monitox readings >0 ppm, evacuate work zone and then call Health and Safety Staff.

Action Levels for Evacuation of Work Zone Pending Reassessment of Conditions: CONTACT HEALTH AND SAFETY STAFF IF EVACUATION OCCURS.

- Level D: O_2 <19.5% or >25%, explosive atmosphere >10% LEL, organic vapors above background levels, particulates > N/A mg/m^3, other N/A.
- Level C: O_2 <19.5% or >25%, explosive atmosphere >25% LEL (California-20%), unknown organic vapor (in breathing zone) >5 ppm, particulates > N/A mg/m^3, other N/A.
- Level B: O_2 <19.5% or >25%, explosive atmosphere >25% LEL (California-20%), unknown organic vapors (in breathing zone) >500 ppm, particulates > N/A mg/m^3, other N/A.
- Level A: O_2 <19.5% or >25%, explosive atmosphere >25% LEL (California-20%), unknown organic vapors >500 ppm, particulates > N/A mg/m^3, other N/A.

Air Monitoring (daily calibration unless otherwise noted):

Contaminant of Interest	Type of Sample (area, personal)	Monitoring Equipment	Frequency of Sampling
N/A			

Decontamination Solutions and Procedures for Equipment, Sampling Gear, etc.:

A solution of Alconox detergent and distilled water will be used to wash spoons, trowels, bowls, split spoons and other sampling equipment before and after sampling. These items will then be 3X rinsed w/dist. water prior to sampling or removal from site.

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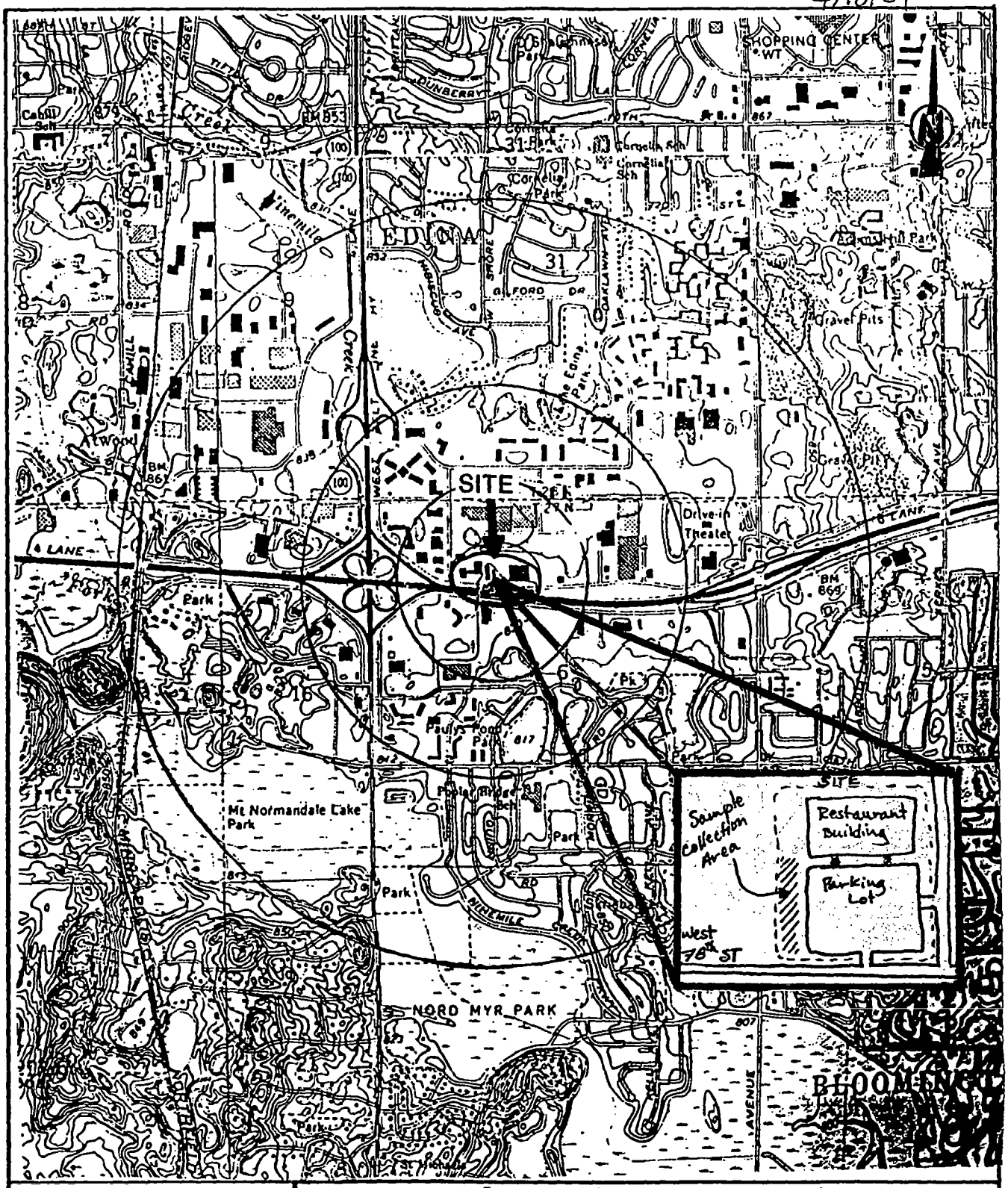

ecology and environment, inc.
111 WEST JACKSON BLVD., CHICAGO, ILLINOIS 60604, TEL. 312-663-9415

TITLE: SITE LOCATION MAP	FIGURE #: 1
SITE: WEST 78TH CIRCLE SITE	SCALE: 1:24000
CITY: BLOOMINGTON STATE: MN	P.A.#: FMN0172GA
SOURCE: USGS BLOOMINGTON, MN QUAD	DATE: 1967 REVISED: 1980

QUADRANGLE LOCATION

Personnel Decon Protocol: Disposable protective gear will be worn whenever possible. Disposable boots, gloves, and saranex suits will be removed from personnel in such a way as they will be turned inside-out. Viton gloves which are deemed reuseable shall be washed in alconox/dist. water solution and 3X rinsed w/dist. water.

Decon Solution Monitoring Procedures, if Applicable: N/A

Special Site Equipment, Facilities, or Procedures (Sanitary Facilities and Lighting Must Meet 29 CFR 1910.120):

FIT members driving split spoon to depth must wear hard hat and safety glasses. FIT members are to observe all areas marked by orange flags or paint -- these are areas where DIGGER'S HOTLINE has identified buried utilities. DO NOT EXCEED 10-foot depth.

Site Entry Procedures and Special Considerations: Permission will be obtained prior to site entry. Stay upwind of contamination when possible. The buddy system will be maintained at all times.

Work Limitations (time of day, weather conditions, etc.) and Heat/Cold Stress Requirements:

Work is restricted to daylight hours only and workers are to be monitored for heat/cold stress.

When vermiculite is used to pack samples, dust masks will be worn.

General Spill Control, if applicable: N/A

Investigation-Derived Material Disposal (i.e., expendables, decon waste, cuttings):

Investigative-derived materials will be decontaminated in accordance with procedures listed above. The decontaminated material will be bagged and left on-site in appropriate waste containers with prior permission of site owner/operator. If this is not acceptable, they will be disposed of in a municipal dumpster or other appropriate waste container.

Sample Handling Procedures Including Protective Wear:

After samples have been collected, the outside of the sample bottles will be decontaminated by washing (not submerging) the bottles in an Alconox solution and rinsing in distilled water. The protective clothing level (i.e. suits, gloves, boots) worn during on-site job activities will be maintained while decontaminating the bottles. Respiratory protection will be worn based on professional judgment. Latex gloves, at a minimum, will be worn, while handling the bottles after decontamination.

Team Member*	Responsibility
STAN SENGER	Team Leader
DAN SULLIVAN	Team member / Backup safety officer
KURT SIMS	Team Member
RON GALMORE	Sampler
DEB BARRETT	SAFETY OFFICER
MIKE PHILLIPS	Sampler TRAINEE

*All entries into exclusion zone require Buddy System use. All E & E field staff participate in medical monitoring program and have completed applicable training per 29 CFR 1910.120. Respiratory protection program meets requirements of 29 CFR 1910.134, and ANSI Z88.2 (1980).

E. EMERGENCY INFORMATION

(Use supplemental sheets, if necessary)

LOCAL RESOURCES

(Obtain a local telephone book from your hotel, if possible)

Ambulance Hennepin Co. Ambulance 911

Hospital Emergency Room FAIRVIEW SOUTHDALE Hospital ... (612) 924-5151 or (911)

Poison Control Center Hennepin Co. Poison Control Ctr... (612) 347-3141 or (911)

Police (include local, county sheriff, state) Bloomington, MN (612) 881-2333 (911)

Minnesota State Police (612) 482-5900

Fire Department City of Bloomington FIRE Dept. ... (612) 887-9633 (911)

Airport Will not be used... N/A.

Agency Contact (EPA, State, Local USCG, etc.) Ron Swenson, MPCA, (612) 297-1793

Local Laboratory N/A

UPS/Fed. Express To be arranged prior to site inspection.

Client/EPA Contact DON Josif, U.S. EPA, (312) 886-0393

Site Contact Bob Bonemeyer, Restaurant MGR (612) 297-1793 / (or) Patrick Kelvie, Cattle Co. Restaurant Lawyer (415) 949-6400

SITE RESOURCES

Site Emergency Evacuation Alarm Method Three short bursts of vehicle horn, repeated 3 times.

Water Supply Source FIT shall provide its own water.

Telephone Location, Number Phone location is in restaurant on-site: (612) 835-1225.

Cellular Phone, if available N/A

Radio N/A

Other E&E WAREHOUSE, (312) 775-7763

EMERGENCY CONTACTS

1. Dr. Raymond Harbison (Univ. of Florida) ..... (501) 221-0465 or (904) 462-3277, 3281
   Alachua, Florida (501) 370-8263 (24 hours)

2. Ecology and Environment, Inc., Safety Director
   Paul Jonmaire ..... (716) 684-8060 (office)
   (716) 655-1260 (home)

3. Regional Office Contact .....Paul Moss..... (312) 541-6635 (home)
   (312) 663-9415 (office)

4. Office Manager .....Jerry Oskvarek..... (312) 545-6016 (home)
   (312) 663-9415 (office)

MEDTOX HOTLINE

1. Twenty-four hour answering service: (501) 370-8263

   What to report:

   - State: "this is an emergency."
   - Your name, region, and site.
   - Telephone number to reach you.
   - Your location.
   - Name of person injured or exposed.
   - Nature of emergency.
   - Action taken.

2. A toxicologist, (Drs. Raymond Harbison or associate) will contact you. Repeat the information given to the answering service.

3. If a toxicologist does not return your call within 15 minutes, call the following persons in order until contact is made:

   a. 24 hour hotline - (716) 684-8940
   b. Corporate Safety Director - Paul Jonmaire - home # (716) 655-1260
   c. Assistant Corp. Safety Officer - Steven Sherman - home # (716) 688-0084

EMERGENCY ROUTES

(NOTE: Field Team must Know Route(s) Prior to Start of Work)

Directions to hospital (include map) Exit site parking lot onto 78th Street and go East (left). At the intersection of 78th and France (@ 0.25 mi.) go north (left) on France Ave. for approx. 2 miles. Hospital will be on your right: 6401 France Ave So. Total trip @ 2 ½ miles.

Emergency Egress Routes to Get Off-Site Exit site from parking lot on south end of facility.

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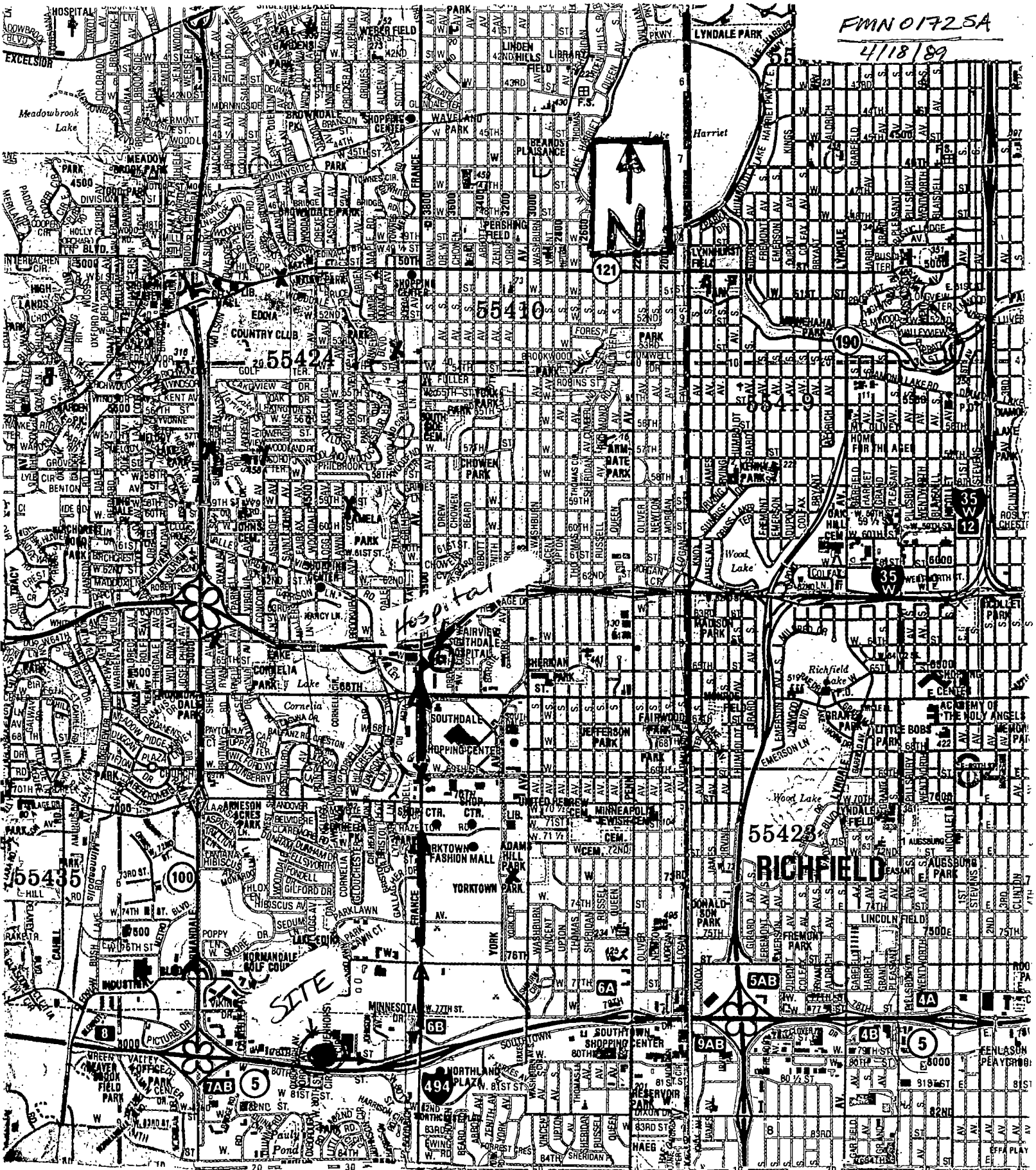

HOSPITAL ROUTE MAP

FMN0172SA

Ecology and Environment, Inc.
Hazard Evaluation of Chemicals
Region V - Chicago

Chemical Name Polychlorinated Biphenyl (PCB) - Arochlor 1254 **Date** 4/18/89
DOT Classification _____ **Job Number** FT1305 FMN017254

CAS Number 11097-69-1

REFERENCES CONSULTED (circle; also include MSDS if approprate.)
(NIOSH/OSHA Pocket Guide) Merck Index Hazardline (Chris(vol.III)) (ACGIH TLV Booklet) Toxic & Hazardous Safety Manual (SAX) Aldrich (RTECS) other: Sittig,Casarett & Doull's Toxicology, NIOSH-Occupational Health Guidelines

CHEMICAL PROPERTIES: (Synonyms: Arochlor 1254 (54% chlorine), chlorodiphenyl)
Chemical Formula $C_{12}H_5Cl_5$ MW 326 Ionization Potential N/A
Physical State viscous liq.dBoiling Point 689-734°F Freezing Point 50°F
Flash Point 432°F Flammable Limits Unknown Vapor Pressure .00006mm
Specific Gravity/Density 1.5 Odor/Odor Threshold not good warning
Solubility-water: Insoluble Solubility-other: _____
Incompatabilities & Reactivity: Strong oxidizers, heat

TOXICOLOGICAL PROPERTIES:
Exposure Limits: TLV-TWA (ACGIH) 0.5 mg/m³(skin) PEL (OSHA) 0.5 mg/m³
STEL 1mg/m³ Ceiling Limits none est IDLH 5mg/m³
Toxicity Data: (Indicate duration of study)
Human; IHL _____ Dermal _____ Oral _____
Rat/Mouse; IHL _____ Dermal Tdlo 4mg/kg;ETA Oral LD50 1295 mg/kg
Aquatic: _____ Other: _____
Carcinogen sus-hum. Mutagen exp Reproductive Toxin exp.teratogen
Route(s) of exposure - (circle all that apply): (Inhalation) (Ingestion) (Dermal Contact) (Eye(ocular)) (Dermal Absorption) Other _____

HANDLING RECOMMENDATIONS: (personal protective measures)
Respirators: >any detectable limit - SCBA
Protective Clothing: Excel-viton;good-butyl,vinyl,nitrile;poor-neoprene.
Special Equipment: Clothing to avoid contact,safety goggles.

DISPOSAL,FIRE and SPILLS: (Use numbered codes;see attached sheets for explanation.)
Disposal D.0 Fire 7 Leaks&Spills _____
Decomposition Products: Toxic fumes of hydrogen chloride and CO.

FIRST AID:
ING: Medical atten. immed.,give salt water, induce vomiting.
IHL: Move to fresh air, artifical resp. if necessary, medical atten.
Eye/Skin: Irrigate/rinse immed. with water. Wash skin thoroughly with soap and water.

SYMPTOMS:
acute(immediate) exposure effects: Irritation of eyes,nose,throat.Can cause vomiting,edema,anorexia, nausea, abdominal pain. fatigue.

chronic(long term) exposure effects: Chloracne or dermatitis from prolonged skin contact, jaundice, dark urine,liver damage or cancer. Increase in chlorination increases toxicity of PCB (see Arochlor 1242).

Reproductive effects: Accidental oral intake has shown that PCB's may be embryotoxic causing stillbirth,characteristic grey-brown skin,and increased eye discharge to infants born to women exposed during pregnancy.

Ecology and Environment, Inc.
Hazard Evaluation of Chemicals
Region V - Chicago

Chemical Name Toluene **Date** 4/18/89

DOT Classification _____ **Job Number** FMN0172SA

CAS Number 108-88-3

REFERENCES CONSULTED (circle; also include MSDS if approprate.)
(NIOSH/OSHA Pocket Guide) Merck Index (Hazardline) (Chris(vol.III))
(ACGIH TLV Booklet) Toxic & Hazardous Safety Manual (SAX) (Aldrich)
RTECS other: Sittig

CHEMICAL PROPERTIES: (Synonyms: Phenyl methane, methyl benzene)
Chemical Formula $C_6H_5CH_3$ MW 92 Ionization Potential 8.82ev
Physical State liquid Boiling Point 231°F Freezing Point -139°F
Flash Point 40°F Flammable Limits 1.27-7% Vapor Pressure 22mm
Specific Gravity/Density 0.867 Odor/Odor Threshold 0.17ppm
Solubility-water: slightly Solubility-other: _____
Incompatabilities & Reactivity: Strong oxidizers, nitric acid, peroxides

TOXICOLOGICAL PROPERTIES:
Exposure Limits: TLV-TWA (ACGIH) 100ppm PEL (OSHA) 200ppm
STEL 150ppm(skin) Ceiling Limits 300ppm/15min IDLH 2000 ppm
Toxicity Data: (Indicate duration of study)
Human; IHL Tclo 200ppm Dermal _____ Oral _____
Rat/Mouse; IHL Lclo 4000pm/4H Dermal _____ Oral _____
Aquatic: Tlm 96: 100-10ppm Other: _____
Carcinogen exper. Mutagen exper Reproductive Toxin exp.teratogen
Route(s) of exposure - (circle all that apply): (Inhalation) (Ingestion)
(Dermal Contact) (Eye(ocular)) Dermal Absorption Other _____

HANDLING RECOMMENDATIONS: **(personal protective measures)**
Respirators: 1000ppm-APR w/chemical cartridge; 2000 ppm-SCBA
Protective Clothing: Excel-viton: Good-Polyurethane, neoprene/styrene;
Poor-neopene, butyl.
Special Equipment: None

DISPOSAL, FIRE and SPILLS: **(Use numbered codes; see attached sheets for explanation.)**
Disposal D Fire 6.7 Leaks&Spills 3,4,5,6,9
Decomposition Products: CO, CO_2

FIRST AID:
ING: Do not induce vomiting, contact physician immed.
IHL: Remove to fresh air, artifical resp, if necessary.
Eye/Skin: Irrigate/wash with large amounts of water for at least 15 min.

SYMPTOMS:
acute(immediate) exposure effects: IHL: dizziness, headache, ING: vomiting, nausea, diarrhea. Liquid irritates eyes, dries skin.

chronic(long term) exposure effects: Kidney and/or liver damage if ingested. Inhalation may cause anemia, bone marrow hypoplasia. Dermatitis with skin contact.

reproductive effects: None

Ecology and Environment, Inc.
Hazard Evaluation of Chemicals
Region V - Chicago

Chemical Name Trichloroethylene **Date** 4/18/89

DOT Classification _____ **Job Number** FMN017254

CAS Number 79-01-6

REFERENCES CONSULTED (circle; also include MSDS if approprate.)
(NIOSH/OSHA Pocket Guide) Merck Index Hazardline (Chris(vol.III))
(ACGIH TLV Booklet) Toxic & Hazardous Safety Manual (SAX) (Aldrich)
(RTECS) other: Sittig

CHEMICAL PROPERTIES: (Synonyms: TCE, trichloroethene, ethylene trichloride)
Chemical Formula C_2HCl_3 MW 131 Ionization Potential 9.47ev
Physical State liquid Boiling Point 188° F Freezing Point -123° F
Flash Point None Flammable Limits 8-10.5% Vapor Pressure 58mm
Specific Gravity/Density 1.46 Odor/Odor Threshold 50ppm
Solubility-water: Insoluble Solubility-other: _____
Incompatabilities & Reactivity: Strong caustics, chemically active metals

XICOLOGICAL PROPERTIES:
Exposure Limits: TLV-TWA (ACGIH) 50ppm PEL (OSHA) 100ppm
STEL 200ppm Ceiling Limits 200ppm IDLH 1000ppm
Toxicity Data: (Indicate duration of study)
Human; IHLTclo 160ppm/83min Dermal _____ Oral _____
Rat/Mouse; IHLLclo 8000ppm/4hr Dermal _____ Oral _____
Aquatic: T/M 96:100-10ppm Other: exp. human carcinogen
Carcinogen pos-anim. Mutagen exper. Reproductive Toxin exp. teratogen
Route(s) of exposure - (circle all that apply): (Inhalation) (Ingestion)
(Dermal Contact) (Eye(ocular)) Dermal Absorption Other _____

HANDLING RECOMMENDATIONS: (personal protective measures)
Respirators: 500ppm - APR w/organic cartridge; 1000ppm-SCBA
Protective Clothing: Excel-viton; Good-neoprene/styrene; Poor-butyl, neoprene, nitrile.
Special Equipment: None

SPOSAL, FIRE and SPILLS: (Use numbered codes; see attached sheets for explanation.)
Disposal A Fire 11.13 Leaks&Spills 1,4,6,9
Decomposition Products: CO, CO_2, hydrogen chloride & phosgene gas

FIRST AID:
ING: Give large amounts of water, induce vomiting, medical attent.
IHL: Remove to fresh air, CPR if necessary, medical attent. immed.
Eye/Skin: Irrigate/flush with water for at least 15 min. Wash skin thoroughly with soap and water.

SYMPTOMS:
acute(immediate) exposure effects: Irritation of nose & throat, nausea, blurred vision, irritaiton to eyes, dermatitis.

Chronic(long term) exposure effects: Liver and/or kidney damage, cardiac degeneration, central nervous system degeneration.

Reproductive effects: Has produced reproductive effects in experimental animals.

Ecology and Environment, Inc.
Hazard Evaluation of Chemicals
Region V - Chicago

Chemical Name Xylene (mixed isomers) **Date** 4/18/89

DOT Classification _____ **Job Number** FMN0172SA

CAS Number 1330-20-7

REFERENCES CONSULTED (circle; also include MSDS if approprate.)
(NIOSH/OSHA Pocket Guide) Merck Index (Hazardline) (Chris(vol.III))
(ACGIH TLV Booklet) Toxic & Hazardous Safety Manual (SAX) (Aldrich)
RTECS other: Sittig

CHEMICAL PROPERTIES: (Synonyms: dimethyl benzene, aromatic hydrocarbons)
Chemical Formula $C_6H_4(CH_3)_2$ MW 106 Ionization Potential 8.56/8.44ev
Physical State liquid Boiling Point 292/282°F Feezing Point -12°F
Flash Point 81-90°F Flammable Limits 1-7% Vapor Pressure 7-9mm
Specific Gravity/Density .864 Odor/Odor Threshold .05ppm
Solubility-water: Insoluble Solubility-other: Miscible-ether,ethanol
Incompatabilities & Reactivity: strong oxidizers

TOXICOLOGICAL PROPERTIES:
Exposure Limits: TLV-TWA (ACGIH) 100ppm PEL (OSHA) 100ppm
STEL 150ppm Ceiling Limits none est. IDLH 10,000ppm
Toxicity Data: (Indicate duration of study)
Human; IHL Tclo 200ppm Dermal _____ Oral _____
Rat/Mouse; IHL _____ Dermal _____ Oral _____
Aquatic: 96hr: 22ppm Other: _____
Carcinogen neg-anim Mutagen exper Reproductive Toxin exp.teratogen
Route(s) of exposure - (circle all that apply): (Inhalation) (Ingestion)
(Dermal Contact) (Eye(ocular)) Dermal Absorption Other _____

HANDLING RECOMMENDATIONS: **(personal protective measures)**
Respirators: 1000 ppm APR, 5000 ppm - SCBA
Protective Clothing: Good-nitrile,viton; poor-butyl rubber,neoprene.
Special Equipment: Safety goggles,protective clothing for prolonged exposures.

DISPOSAL,FIRE and SPILLS: **(Use numbered codes;see attached sheets for explanation.)**
Disposal D Fire 6.7 Leaks&Spills 3,4,5,6,9
Decomposition Products: CO, CO_2

FIRST AID:
ING: Do not induce vomiting, contact physician; immediately.
IHL: Move to fresh air, artificial resp. if necessary.
Eye/Skin: Irrigate/rinse with water for at least 15 min. Wash skin throughly with soap and water.

SYMPTOMS:
acute(immediate) exposure effects: Vapors cause dizziness, headache, coughing, pulmonary distress & edema. Nausea,vomiting,abdominal cramps also seen with over-exposure.

Chronic(long term) exposure effects: Possible liver and/or kidney damage, pulmonary congestion. Ingestion may be fatal.

Reproductive effects: None

THE SIGMA-ALDRICH LIBRARY OF CHEMICAL SAFETY DATA

Explanation of Codes

PROCEDURES FOR SPILLS OR LEAKS

1 Absorb on sand or vermiculite and place in closed container for disposal.
2 Cover with dry lime, sand, or soda ash. Place in covered containers using nonsparking tools and transport outdoors.
3 Shut off all sources of ignition.
4 Evacuate area.
5 Cover with an activated carbon adsorbent, take up and place in closed container. Transport outdoors.
6 Ventilate area and wash spill site after material pickup is complete.
7 Sweep up, place in a bag and hold for waste disposal.
8 Avoid raising dust.
9 Wear self-contained breathing apparatus, rubber boots and heavy rubber gloves.
10 Wear respirator, chemical safety goggles, rubber boots and heavy rubber gloves.
11 Cover with dry lime or soda ash, pick up; keep in a closed container and hold for waste disposal.
12 Carefully sweep up and remove.
13 Flush spill area with copious amounts of water.
14 Mix with solid sodium bicarbonate.
15 Place in appropriate container.
16 Wear protective equipment.
17 Wash spill site with soap solution.
18 Please contact the Technical Services Department. Be sure to mention the name and catalog number of the material.

FIRE-EXTINGUISHING MEDIA

1 Carbon dioxide.
2 Dry chemical powder.
3 Water spray.
4 Alcohol or polymer foam.
5 Class D fire-extinguishing material only.
6 Water may be effective for cooling, but may not effect extinguishment.
7 Carbon dioxide, dry chemical powder, alcohol or polymer foam.
8 Foam and water spray are effective but may cause frothing.
9 Do not use dry chemical powder extinguisher on this material.
10 Do not use carbon dioxide extinguisher on this material.
11 Noncombustible.
12 Do not use water.
13 Use extinguishing media appropriate to surrounding fire conditions.

Z14,866-0

Sigma-Aldrich Corporation, P.O. Box 355, Milwaukee, Wisconsin 53201 USA
(Sigma: 314-771-5765; Aldrich: 414-273-3850)

WASTE-DISPOSAL METHODS

The disposal methods outlined below are intended only as guides. We do not assume responsibility for their use. Careful consideration must be given to the chemical and physical properties of the substance. In addition, local laws and *regulations may preclude the use of these* methods which are primarily designed for small quantities. Observe all federal, state, and local laws.

The disposal of some chemicals may require deactivation or modification of the material by chemical means. Chemical waste-disposal reactions must be handled with the same care and consideration used with synthetic procedures. Appropriate consideration must be given to reaction conditions, *i.e.*, stoichiometry, order and rate of addition, heat of reaction, evolution of gaseous products, pH, efficiency of stirring, rate of reaction, atmospheric sensitivity, etc.

Chemical waste-disposal reactions should be carried out in a chemical fume hood and in appropriate laboratory glassware. Because these reactions are often vigorous, protective safety equipment such as safety *goggles, respirator, gloves, face and/or safety shield and* other protective equipment must be used.

Initial reactions in a disposal sequence should be carried out on a small scale (5-10g). The reactant concentrations should not exceed 10% of the reaction volume and the final reaction volume should not exceed 50% of the working capacity of the reaction vessel, regardless of the reaction scale. Larger quantities of the material should be handled in several small-size reactions. To ensure completion of reaction, the waste disposal procedure should be run for at least an additional 4 to 8 hours after all materials have been mixed.

All reactions should be run by technically qualified persons familiar with the potential hazards of the chemical reactions.

A Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

B The material should be ignited in the presence of sodium carbonate and slaked lime (calcium hydroxide). The substance should be mixed with vermiculite and then with the dry caustics, wrapped in paper and burned in a chemical incinerator equipped with an afterburner and scrubber.

C This combustible material may be burned in a chemical incinerator equipped with an afterburner and scrubber.

D Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable.

E To a solution of the product in water, add an excess of dilute sulfuric acid. Let stand overnight. Remove any insolubles and bury in a landfill site approved for hazardous-waste disposal.

F Cautiously dissolve the material in water. Neutralize *immediately with sodium carbonate or, if the* material does not dissolve completely, add a little hydrochloric acid followed by sodium carbonate. Add calcium chloride in excess of the amount needed to precipitate the fluoride and/or carbonate. Separate the insolubles and bury in a landfill site approved for hazardous-waste disposal.

G Under an inert atmosphere, cautiously add the material to dry butanol in an appropriate solvent. The chemical reaction may be vigorous and/or exothermic. Provisions must be made for venting of *large volumes of highly flammable hydrogen and/or* hydrocarbon gases. Neutralize the solution with aqueous acid. Filter off any solid residues for disposal as hazardous waste. Burn the liquid portion in a chemical incinerator equipped with an afterburner and scrubber.

H Neutralize the solution and add filtering agent (10g *per 100ml). Evaporate the liquid and bag the residual* solid for burial in a landfill site approved for hazardous-waste disposal.

I Dissolve the solid in (or dilute the solution with) a large volume of water. Carefully add a dilute solution of acetic acid or acetone to the mixture in a well ventilated area. Provisions should be made to vent safely the hydrogen gas given off during the decomposition. Check acidity of the solution and adjust to pH 1 if necessary. Let stand overnight. Neutralize the solution (pH 7). Evaporate the solution and bury the residue in a landfill site approved for hazardous-waste disposal.

J Cautiously acidify a 3% solution or a suspension of the material to pH 2 with sulfuric acid. Gradually add a 50% excess of aqueous sodium bisulfite with stirring at room temperature. An increase in temperature indicates that a reaction is taking place. If no reaction is observed on the addition of 10% of the sodium bisulfite solution, initiate it by cautiously adding more acid. If manganese, chromium, or molybdenum is present, adjust the pH of the solution to 7 and treat with sulfide to precipitate for burial as hazardous waste. Destroy excess sulfide, neutralize and flush solution down the drain.

K Please contact the Technical Services Department. Be sure to mention name, catalog number and quantity of the material.

L The material should be dissolved in 1) water; 2) acid solution or 3) oxidized to a water-soluble state. Precipitate the material as the sulfide, adjusting the pH of the solution to 7 to complete precipitation. Filter the insolubles and dispose of them in a hazardous-waste site. Destroy any excess sulfide with sodium hypochlorite. Neutralize the solution before flushing down the drain.

M A slurry of the arenediazonium salt with water can be disposed of by adding it gradually to a stirred solution of 5-10% excess 2-naphthol in 3% aqueous sodium hydroxide at 0-20°C. After 12 hours, the resulting azo dye is filtered and either incinerated or buried in a landfill site approved for hazardous-waste disposal. Neutralize the remaining solution before disposal.

N For small quantities: cautiously add to a large stirred excess of water. Adust the pH to neutral, separate any insoluble solids or liquids and package them for hazardous-waste disposal. Flush the aqueous solution down the drain with plenty of water. The hydrolysis and neutralization reactions may generate heat and fumes which can be controlled by the rate of addition.

O *Bury in a landfill site approved for the disposal of* chemical and hazardous waste.

P *Material in the elemental state should be recovered* for reuse or recycling.

Q *Cautiously make a 5% solution of the material in* water or dilute acid. There may be a vigorous, exothermic reaction and fumes may be generated due to the hydrolysis of the material. Control any reaction by cooling and by the rate of addition of the material. Gradually add dilute ammonium hydroxide to pH 10. Filter off any precipitate for disposal in a chemical landfill. *If there is no precipitation, gradually adjust* the pH from 10 to 6, stopping when precipitation occurs.

R Catalysts and expensive metals should be recovered for reuse or recycling.

S Treat a dilute basic solution (pH 10-11) of the material with a 50% excess of commercial laundry bleach. Control the temperature by the addition rate of bleach and adjust pH if necessary. Let stand overnight. Cautiously adjust solution to pH 7. Vigorous evolution of gas may occur. Filter any solids for burial in a chemical landfill. Precipitate any heavy metals by addition of sulfide and isolate for burial. Additional equivalents of hypochlorite may be needed if the metal can be oxidized to a higher valence state. For metal carbonyls, the reaction should be carried out under nitrogen.

T Cautiously make a 5% solution of the product in water; vent because of possible vigorous evolution of flammable hydrogen gas. Acidify the solution to pH 1 by adding 1*M* sulfuric acid dropwise. Acidification will cause vigorous evolution of hydrogen gas. Allow the solution to stand overnight. Evaporate the solution to *dryness and bury the residue in a landfill site* approved for hazardous-waste disposal.

U Take the material (or a solution) and make a 5% solution in tetrahydrofuran. Cautiously add the solution dropwise to an ice-cooled, stirred basic solution of commercial bleach. Oxidation may release flammable hydrocarbon gases which must be vented. Let stand overnight. Adjust the pH to 7 and destroy excess hypochlorite with sodium bisulfite before disposal of the solution.

V Under an inert atmosphere cautiously add dry butanol or a mixture of dry butanol in an appropriate solvent, to a solution of the material in tetrahydrofuran. The chemical reaction may be vigorous and/or exothermic. Provisions must be made for the venting of a large volume of flammable hydrogen gas. When gas evolution ceases, cautiously add a basic hypochlorite solution dropwise to the reaction solution. Let stand overnight. Neutralize the solution and treat with sodium bisulfite to destroy any excess hypochlorite. Filter any solids for burial in a landfill site approved for hazardous-waste disposal.

These recommendations are intended only as guides. Sigma-Aldrich shall not be held liable for any damage resulting [illegible] of the Sigma-Aldrich Library of Chemical Safety Data for more information.

SITE DOSIMETER LOG

PROJECT/PAN # FMN0172SA SITE NAME West 78th Circle Site

SITE SAFETY OFFICER Deb Barrett WEEK OF 5/15

NAME AND DOSIM. #	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY	SUNDAY
S. SENGER #217							
D. BARRETT #231							
D. SULLIVAN #207							
K. Sims #76							
M. Phillips #236							
P. GALMORE #189							

To the nearest half-hour, record time spent downrange as "S" (e.q., S:2.5hrs), time spent in active PDS operation as "P", and any time spent downrange in rescue activity as "R".

HS005(2/24/89)

Warehouse Phone (312) 775-7763 F. EQUIPMENT CHECKLIST Job/PAN FMN0172SA

Team Leader S. SENGER

PROTECTIVE GEAR

Level A	No.
SCBA	
SPARE AIR TANKS	
ENCAPSULATING SUIT (Type _____)	
SURGICAL GLOVES (Latex)	
NEOPRENE SAFETY BOOTS	
BOOTIES (Latex)	
GLOVES: Type _____ SM _____ M _____ L _____	
OUTER WORK GLOVES	
CASCADE SYSTEM	
5-MINUTE ESCAPE MASK	
COOLING VEST	
HARD HAT	
Level C	
ULTRA-TWIN RESPIRATOR	✓
POWER AIR PURIFYING RESPIRATOR	
CARTRIDGES (Type GMC-H)	
PROTECTIVE COVERALL: Type SARANEX SM _____ M 8 XXL 4	
BUTYL APRON	
SURGICAL GLOVES (LATEX) 1 Box	1 Box
GLOVES: Type Vitons SM _____ M 1pr L 6 pr.	7 pr.
OUTER WORK GLOVES	
HARD HAT	
FACE SHIELD	
HARDHAT	
RAIN SUIT	
NEOPRENE SAFETY BOOTS	
BOOTIES (LATEX)	
STEEL TOED BOOTS	

Level B	No.
SCBA	1
SPARE AIR TANKS N/A	
PROTECTIVE COVERALL: Type SARANEX SM _____ M _____ L _____	
BUTYL APRON	
SURGICAL GLOVES (LATEX)	
GLOVES: Type Vitons SM _____ M _____ L _____	
NEOPRENE SAFETY BOOTS	
BOOTIES (LATEX)	
HARD HAT	
FACE SHIELD	
MANIFOLD SYSTEM WITH AIRLINE	
CASCADE SYSTEM	
RAIN SUIT	
OUTER WORK GLOVES	
Level D	
ULTRA-TWIN RESPIRATOR (Available)	✓
CARTRIDGES (Type GMC-H)	1 Box
5-MINUTE ESCAPE MASK (Available)	2
PROTECTIVE COVERALL: Type SARANEX SM _____ XL 8 XXL 4	12
OUTER WORK GLOVES VITON	7
HARD HAT	6
FACE SHIELD N/A	
RAIN SUIT N/A	
WINTER BOOTS N/A	
BOOTIES (LATEX)	14 pr.
NEOPRENE SAFETY BOOTS	
STEEL TOED BOOTS	6 pr.
SAFETY GLASSES	6 pr.

HS017(03/17/89)

Surgical Gloves (Latex) 1 Box

INSTRUMENTATION	No.
OVA	1
THERMAL DESORBER	
O2/EXPLOSIMETER W/CAL. KIT	1
PHOTOVAC TIP	
HNu (Probe 10.2 OR 11.7)	
MAGNETOMETER	
PIPE LOCATOR	
WEATHER STATION	
DRAEGER PUMP, TUBES _____	
BRUNTON COMPASS	
MONITOX CYANIDE	1
HEAT STRESS MONITOR	
NOISE EQUIPMENT _____	
PERSONAL SAMPLING PUMPS (Type_____)	
DUST MONITOR (MDA OR GCA System)	
RADIATION EQUIPMENT	
TLD BADGES	6
DOCUMENTATION FORMS	
PORTABLE RATEMETER	
SCALER/RATEMETER	
NaI Probe	
ZnS Probe	
GM Pancake Probe	
GM Side Window Probe	
MICRO R METER / RAD-MINI	1
ION CHAMBER	
ALERT DOSIMETER	
POCKET DOSIMETER	
FIRST AID EQUIPMENT	
FIRST AID KIT	1 Kit
OXYGEN ADMINISTRATOR	
STRETCHER	
PORTABLE EYE WASH	1
BLOOD PRESSURE MONITOR	
FIRE EXTINGUISHER	In vehicle

DECON EQUIPMENT	No.
WASH TUBS	1
BUCKETS	1
SCRUB BRUSHES	1
PRESSURIZED SPRAYER	
DETERGENT (Type Alconox & MSA San.)	1 ea
SOLVENT (Type _____)	
PLASTIC SHEETING	
TARPS AND POLES	
TRASH BAGS	2 boxes
TRASH CANS	
MASKING TAPE	
DUCT TAPE	
PAPER TOWELS	4 rolls
DUST MASK	10
FACE MASK SANITIZER MSA San. Soln	1 bag
FOLDING CHAIRS	
STEP LADDERS	
DISTILLED WATER	8 gal.
SAMPLING EQUIPMENT	
80 OZ. AMBER GLASS BOTTLES	
1 L. AMBER GLASS BOTTLES	
40 ML. VIALS	
8 OZ. GLASS	12
120 ML. GLASS	12
SPOONS	5
KNIVES	
FILTER PAPER	
PERSONAL SAMPLING PUMP SUPPLIES	
BUCK CALIBRATOR	
HAND BAILERS	
THIEVING RODS WITH BULBS	
DIOXIN SAMPLE KIT	
PRESERVATIVES: HNO3__ NaOH__ Other__	
STRING	

VAN EQUIPMENT	No.
TOOL KIT	1 ea.
HYDRAULIC JACK	
LUG WRENCH	
TOW CHAIN	
VAN CHECK OUT	
Gas	
Oil	
Antifreeze	
Battery	
Windshield Wash	
Tire Pressure	
Suburbans	2 ea.
MISCELLANEOUS	
CHALK	
LEVEL/TRIPOD AND ROD	
BOWLS	5
PITCHER PUMP	
SURVEYOR'S TAPE	
100 FIBERGLASS TAPE	1 roll
300 NYLON ROPE	
NYLON STRING	
SURVEYING FLAGS	
FILM	2 rolls
WHEEL BARROW	
BUNG WRENCH	
SOIL AUGER	
PICK	
SHOVEL / post hole digger	1 each
CATALYTIC HEATER	
PROPANE GAS	
BANNER TAPE	
SURVEYING METER STICK	
CHAINING PINS & RING	
TABLES	
WEATHER RADIO	
BINOCULARS	
MEGAPHONE	

See Vehicle Safety Checklist

MISCELLANEOUS (Cont.)	No.
HEARING PROTECTION ear plugs	10 pr
LIFE VESTS	
WALKIE-TALKIE	
CONDUCTIVITY METER	
PH METER	
CAMERA	
WATER-LEVEL INDICATOR	
SPLIT SPOON SAMPLERS + veg. oil	2
PVC HAND PUMP	
RESISTIVITY METER	
WELL POINT SAMPLER	
ROBAIR PUMP SYSTEM	
THERMOMETER	
MASTERFLEX PUMP & FILTER APPARATUS	
SHIPPING EQUIPMENT	
COOLERS Large metal	X
PAINT CANS WITH LIDS, 7 CLIPS EACH	
VERMICULITE at least 5 bags	✓
SHIPPING LABELS	
DOT LABELS: "DANGER"	
"UP"	
"INSIDE CONTAINER COMPLIES ..."	
"HAZARD GROUP"	
STRAPPING TAPE	X
BOTTLE LABELS	X
BAGGIES	X
CUSTODY SEALS	X
CHAIN-OF-CUSTODY FORMS	X
FEDERAL EXPRESS FORMS	X
CLEAR PACKING TAPE	X
Bungee cords (for holding rear doors of Suburban open.)	2

ecology and environment, inc.

ON-SITE SAFETY MEETING

Project West 78th Circle Site TDD/Pan FMN0172SA / E05-8903-001

Date _____ Time _____ Job No. FT1305

Address 4470 W. 78th St., Bloomington, MN.

Specific Location Cattle Co. Restaurant Parking Lot

Type of Work 5 soil samples from on-site locations, 3 Res. wells from nearby ... if cannot be found, 3 process wells from nearby.

SAFETY TOPICS PRESENTED

Protective Clothing/Equipment _____

Chemical Hazards _____

Radiation Hazards _____

Physical Hazards _____

Emergency Procedures _____

Hospital/Clinic _____ Telephone _____

Hospital Address _____

Special Equipment _____

Other _____

Checklist

1. Emergency information reviewed? _____ and made familiar to all team members? _____
2. Route to nearest hospital driven? _____ and its location known to all team members? _____
3. Site safety plan readily available and its location known to all team members? _____

Meeting shall be attended by all personnel who will be working within the exclusion area. Daily informal update meetings will be held when site tasks and/or conditions change.

ATTENDEES
(Expand on back of sheet if necessary)

Name Printed	Signature

Meeting Conducted by: _____ _____
(Print: (Signature)

_____ _____
(Site Safety Coordinator) (Team Leader)

ON-SITE SAFETY LOG

ECOLOGY AND ENVIRONMENT, INC.
CHICAGO

A. ON-SITE MONITORING

EQUIPMENT USED	BACKGROUND READING IN BREATHING ZONE	CALIBRATED AT	ON-SITE READING IN BREATHING ZONE
1. OVA			
2. O_2 Meter			
3. Explosimeter			
4. RAD MINI			
5. Monitor			

B. PROTECTIVE CLOTHING WORN: _____

C. SITE NAME: West 78th Circle Site FAN/JOB NUMBER: FMN0172SA/F05-8903-001

DATE: _____

WEATHER CONDITIONS: _____

NAMES OF ATTENDEES AT SITE: _____

D. COMMENTS ON MONITORING OR PROTECTIVE CLOTHING: _____

	NAME	SIGNATURE
TEAM LEADER:		
SITE SAFETY OFFICER:		

(P.D. Moss 12/87)

Vehicle Safety Checklist
Ecology & Environment, Inc.
Chicago Office

Date: _____ Time: _____ Odometer: _____

Vehicle Model: _____ Color: _____ License Plate No. _____

INTERIOR:
____ All Safety Belts-Proper Locking
____ Parking Brake

START ENGINE:
____ Oil Pressure
____ Instrument Panel (Warning Lights or Buzzers)
____ Horn
____ Windshield Wiper & Washer
____ Heater/Defroster
____ Mirrors
____ Steering (Loose)
____ Interior Lights
____ Emergency Flashers
____ Starts Properly

FRONT:
____ Headlights (Dim/Bright)
____ Turn Signals
____ Emergency Flashers

REAR:
____ Tail Lights
____ Brake Lights
____ Back up Lights
____ Turn Signals
____ Emergency Flashers

MECHANICAL OPERATION:
____ Engine (misses, knocks, etc.)
____ Check Oil
____ Water/Anti-freeze
____ Wiper Fluid
____ Brake Fluid

OUTSIDE:
____ Tires (properly inflated)
____ Gas Tank Cap

EMERGENCY EQUIPMENT:
____ Fire Extinguisher
____ First Aid Kit
____ Flags, Flares,
____ Spare tire (properly inflated)
____ Tire Changing Kit (jack, tools, etc.)

REMARKS:
_____
_____
_____
_____
_____
_____
_____
_____

TEAM MEMBER/OPERATOR: _____ / _____
(print name) signature

SITE NAME/ADDRESS: West 78th Circle Site, Bloomington, MN

PAN/JOB NUMBER: FMN0172SA/F05-8903-001

RETURN OF VEHICLE TO DUTY STATION

Vehicle Cleanliness: _____
Remarks: _____
_____
_____
_____

Corrections Necessary: _____
_____

TEAM MEMBER/OPERATOR: _____ / _____
(print name) . signature

Date: _____ Time: _____ Odometer: _____

9/88
1372:4

Vehicle Safety Checklist
Ecology & Environment, Inc.
Chicago Office

Date: _____ Time: _____ Odometer: _____

Vehicle Model: _____ Color: _____ License Plate No. _____

INTERIOR:
____ All Safety Belts-Proper Locking
____ Parking Brake

START ENGINE:
____ Oil Pressure
____ Instrument Panel (Warning Lights or Buzzers)
____ Horn
____ Windshield Wiper & Washer
____ Heater/Defroster
____ Mirrors
____ Steering (Loose)
____ Interior Lights
____ Emergency Flashers
____ Starts Properly

FRONT:
____ Headlights (Dim/Bright)
____ Turn Signals
____ Emergency Flashers

REAR:
____ Tail Lights
____ Brake Lights
____ Back up Lights
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____ Emergency Flashers

MECHANICAL OPERATION:
____ Engine (misses, knocks, etc.)
____ Check Oil
____ Water/Anti-freeze
____ Wiper Fluid
____ Brake Fluid

OUTSIDE:
____ Tires (properly inflated)
____ Gas Tank Cap

EMERGENCY EQUIPMENT:
____ Fire Extinguisher
____ First Aid Kit
____ Flags, Flares,
____ Spare tire (properly inflated)
____ Tire Changing Kit (jack, tools, etc.)

REMARKS:
_____
_____
_____
_____
_____
_____
_____
_____

TEAM MEMBER/OPERATOR: _____ / _____
(print name) signature

SITE NAME/ADDRESS: West 78th Circle Site, Bloomington, MN

PAN/JOB NUMBER: FMN0172SA/F05-8903-001

RETURN OF VEHICLE TO DUTY STATION

Vehicle Cleanliness: _____

Remarks: _____
_____
_____
_____

Corrections Necessary: _____
_____

TEAM MEMBER/OPERATOR: _____ / _____
(print name) . signature

Date: _____ Time: _____ Odometer: _____